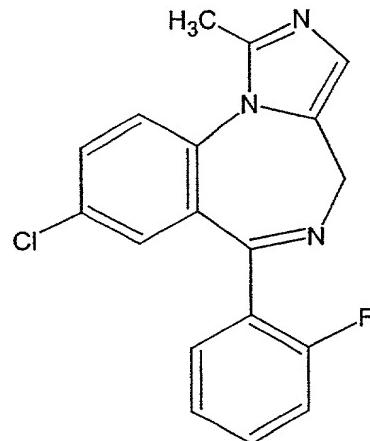
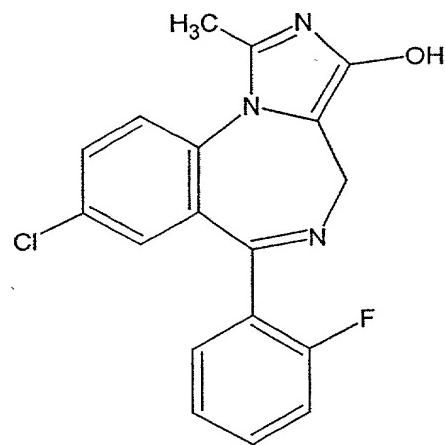


**CYP3A4**



MDZ (Midazolam)

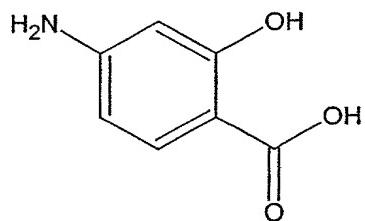


1-OH-MDZ (1-Hydroxymidazolam)

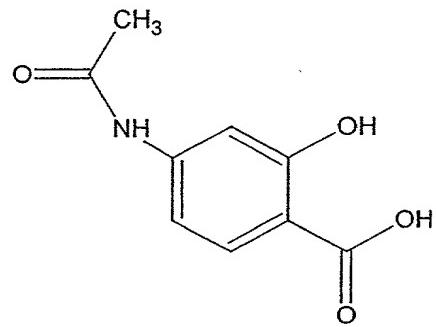
**Fig. 1**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

**NAT1**



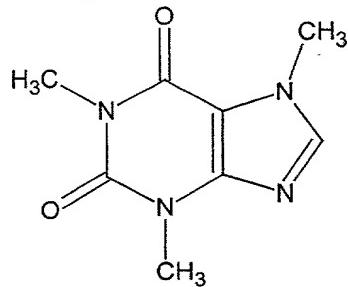
p-ASA (p-aminosalicylic acid)



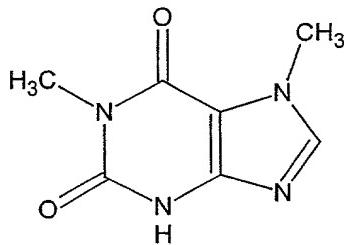
Acetyl-pASA (acetyl-p-aminosalicylic acid)

**Fig. 2**

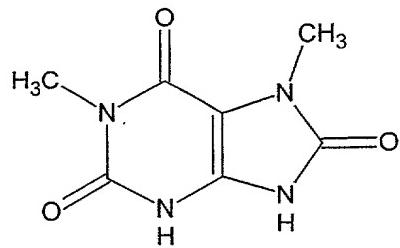
**CYP1A2**



Caffeine (1,3,7-trimethylxanthine)



1,7-DMX (1,7-dimethylxanthine)

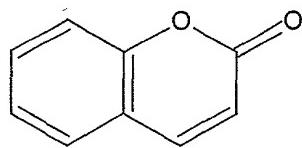


1,7-DMU (1,7-dimethyluracil)

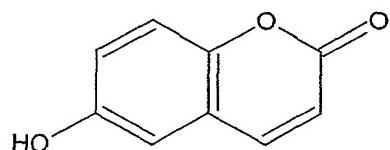
**Fig. 3**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

**CYP2A6**



Coumarin

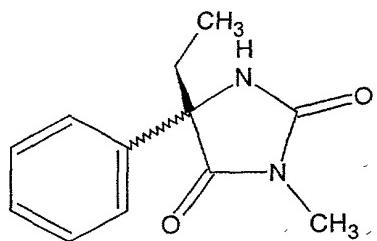


7-Hydroxycoumarin

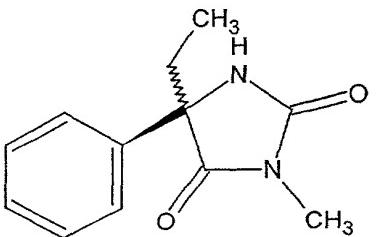
**Fig. 4**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

**CYP2C19**



R - (-) - Mephenytoin

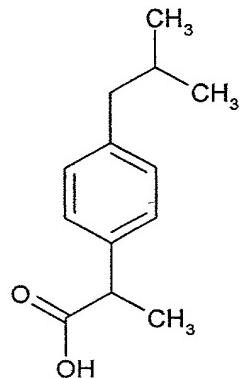


S - (+) - Mephenytoin

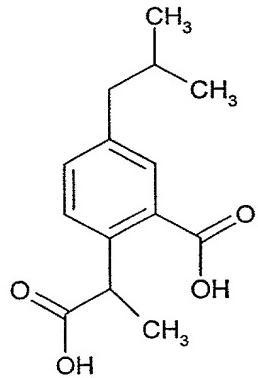
**Fig. 5**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

**CYP2C9**



(S) - Ibuprofen

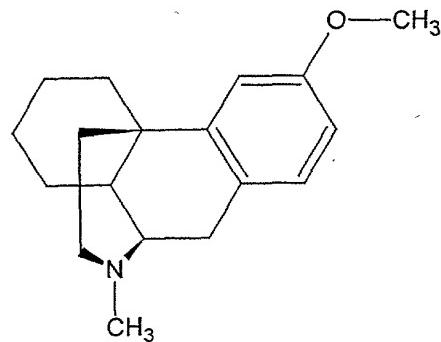


2-carboxvibuprofen

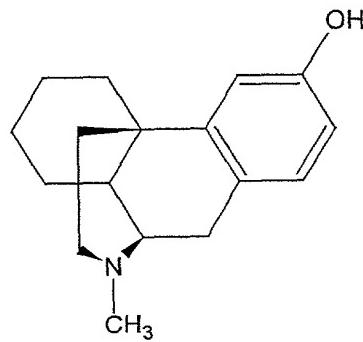
**Fig. 6**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

**CYP2D6**



Dextromethorphan

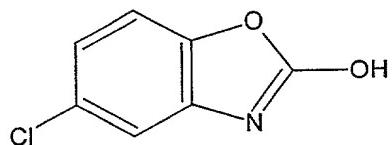


Dextrorphan

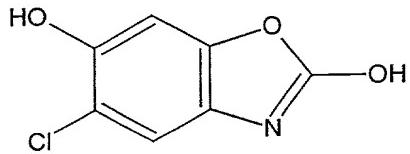
**Fig. 7**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

**CYP2E1**



Clorzoxazone

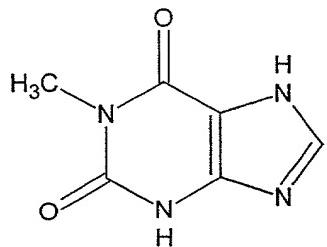


6-Hydroxychlorzoazone

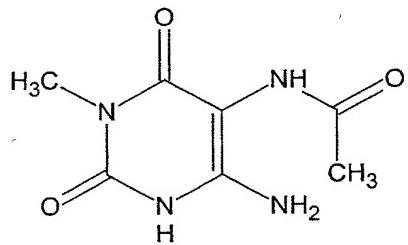
**Fig. 8**

Docket No.: 3298.1001-000  
Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

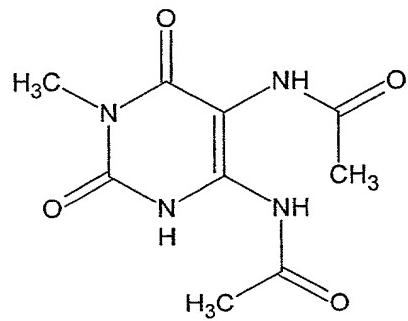
**NAT2**



1X (1-methylxanthine)



AAMU (5-acetamino-6-amino-methyluracil)



AFMU (5-acetamino-6-formylamino-methyluracil)

**Fig. 9**

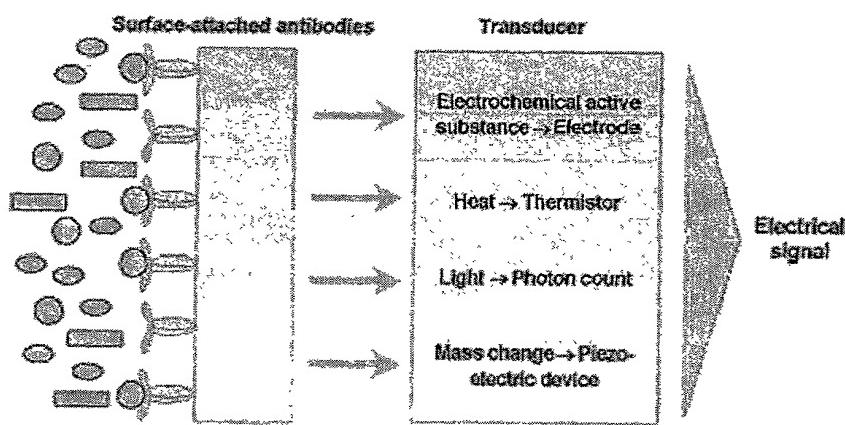


Fig. 10

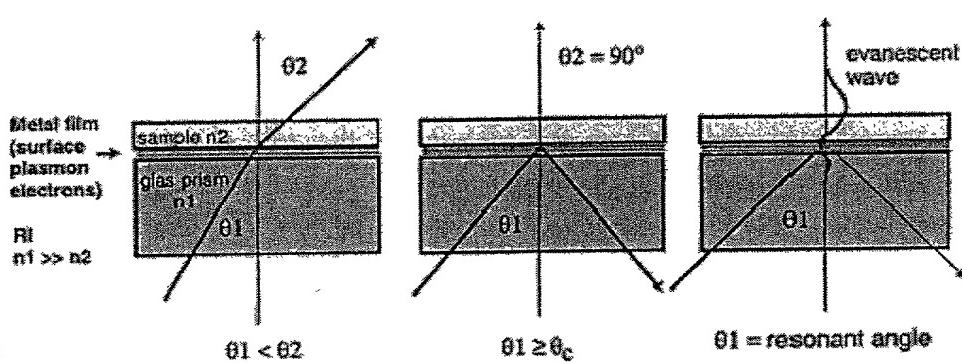


Fig. 11

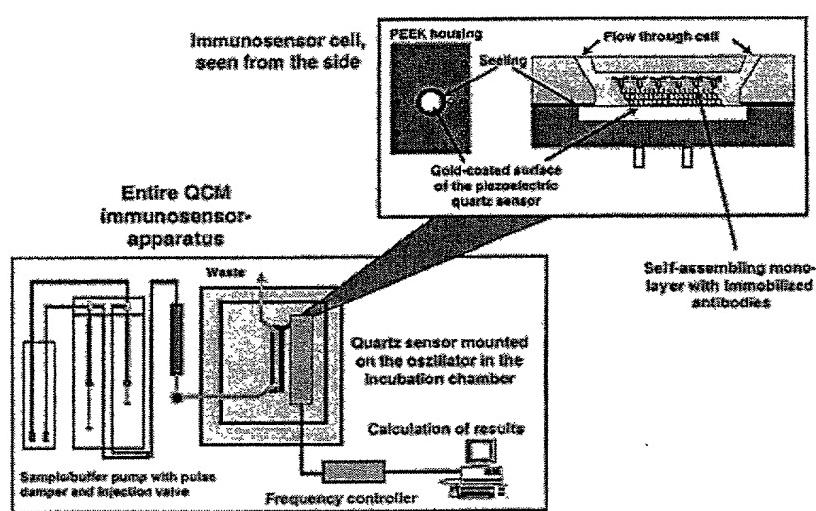
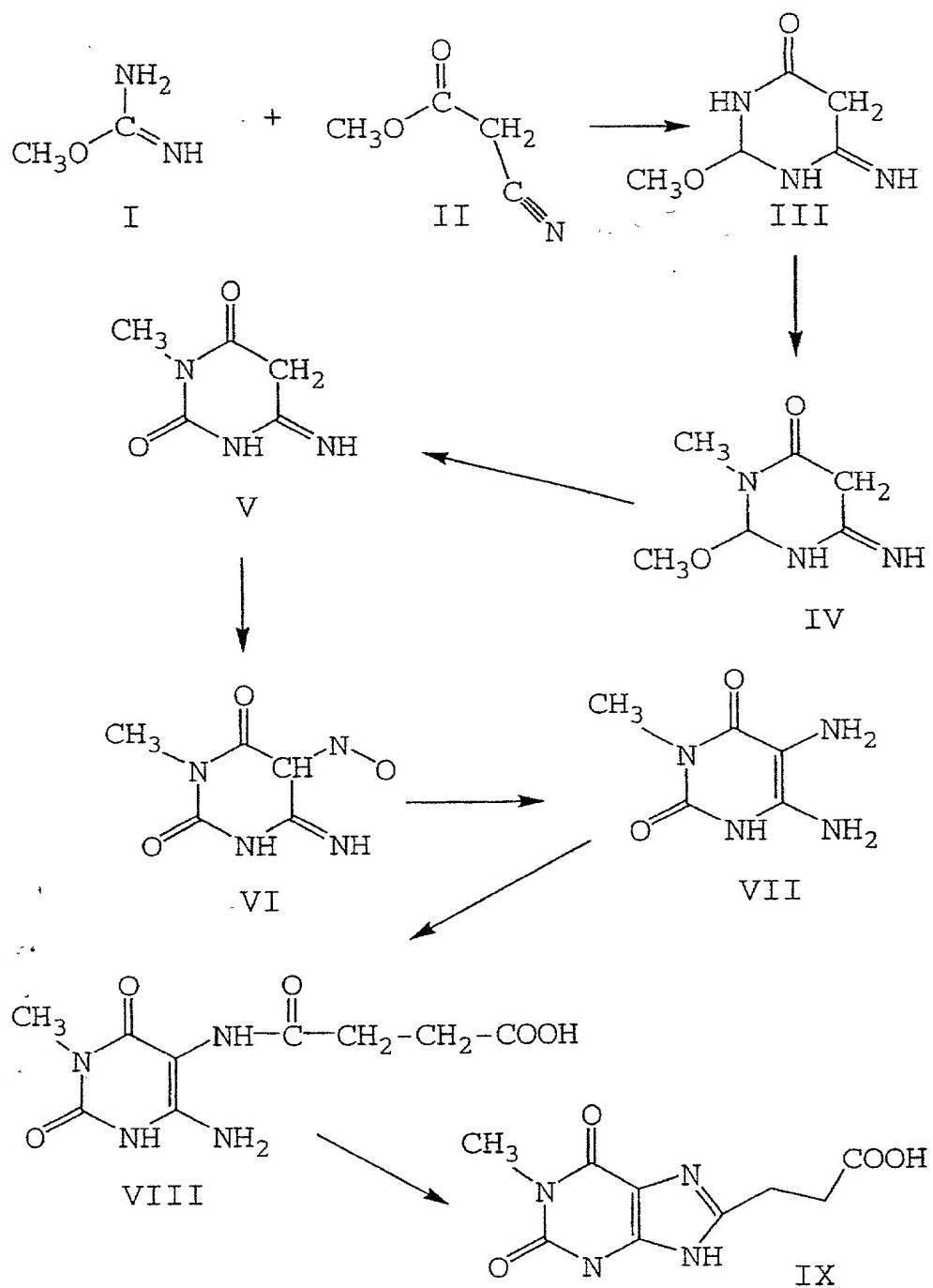


Fig. 12

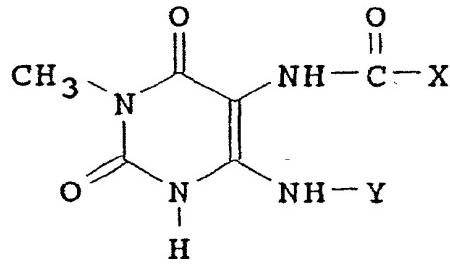


AAMU-hemisuccinic acid

1 methyl xanthine-8-propionic acid

Fig. 13

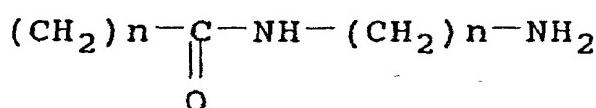
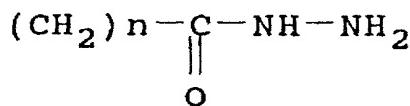
Derivatives of AAMU (5-acetamino-6-amino-3-methyluracil) or AFMU (5-acetamino-6-formylamino-3-methyluracil)



Where Y is  
H or  $\text{C}=\text{H}$   
 $\equiv$   
O

x

$(\text{CH}_2)_n-\text{COOH}$  where  $n = 2, 3$  or  $4$



$\text{CH}_2 - \text{X}'$  where  $\text{X}'$  is I, Br, or Cl

$$\text{CH}_2-\text{S}-\text{(CH}_2)_n-\text{NH}_2$$

$$\text{CH}_2 - \text{S} - \text{CH}_2 - \text{CH}_2 - \text{OH}$$

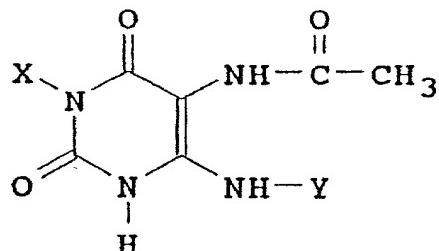
Fig. 14

Docket No.: 3298.1001-000

Title: Multiple Determinants for Metabolic...

Inventor: Brian Leyland-Jones

Derivatives of AAMU (5-acetamino-6-amino-3-methyluracil) or AFMU (5-acetamino-6-formylamino-3-methyluracil)



Where Y is

H or  $\begin{array}{c} \text{C}-\text{H} \\ \parallel \\ \text{O} \end{array}$

X

(CH<sub>2</sub>)<sub>n</sub>-COOH

where n = 2, 3 or 4

(CH<sub>2</sub>)<sub>n</sub>- $\begin{array}{c} \text{C}=\text{O} \\ \parallel \\ \text{O} \end{array}$ -NH-NH<sub>2</sub>

(CH<sub>2</sub>)<sub>n</sub>- $\begin{array}{c} \text{C}=\text{O} \\ \parallel \\ \text{O} \end{array}$ -NH-(CH<sub>2</sub>)<sub>n</sub>-NH<sub>2</sub>

CH<sub>2</sub>-X'

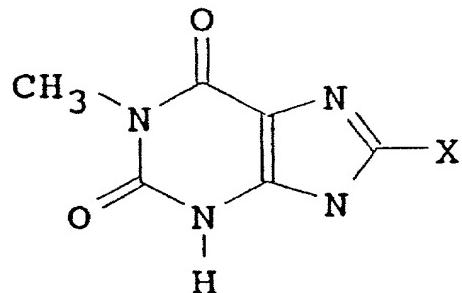
where X' is I, Br, or Cl

CH<sub>2</sub>-S-(CH<sub>2</sub>)<sub>n</sub>-NH<sub>2</sub>

CH<sub>2</sub>-S-CH<sub>2</sub>-CH<sub>2</sub>-OH

Fig. 15

Derivatives of 1X (methylxanthine)



X

(CH<sub>2</sub>)<sub>n</sub>-COOH                          where n = 2, 3 or 4

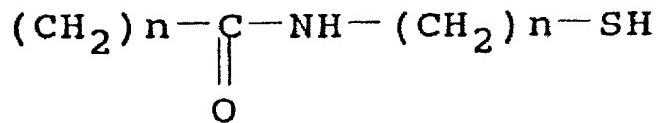
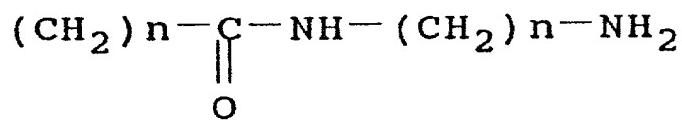
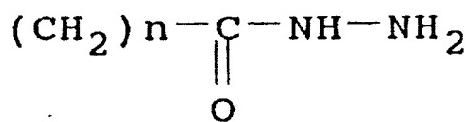


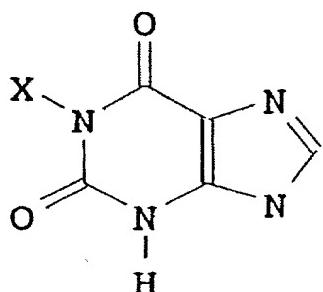
Fig. 16

Docket No.: 3298.1001-000

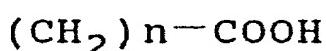
Title: Multiple Determinants for Metabolic...

Inventor: Brian Leyland-Jones

Derivatives of 1X (methylxanthine)



X



where  $n = 2, 3$  or  $4$

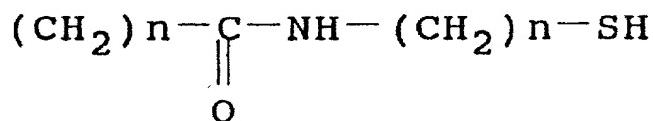
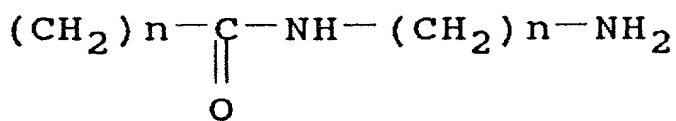
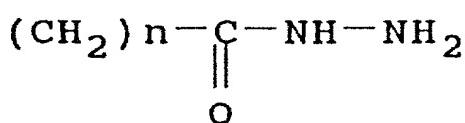


Fig. 17

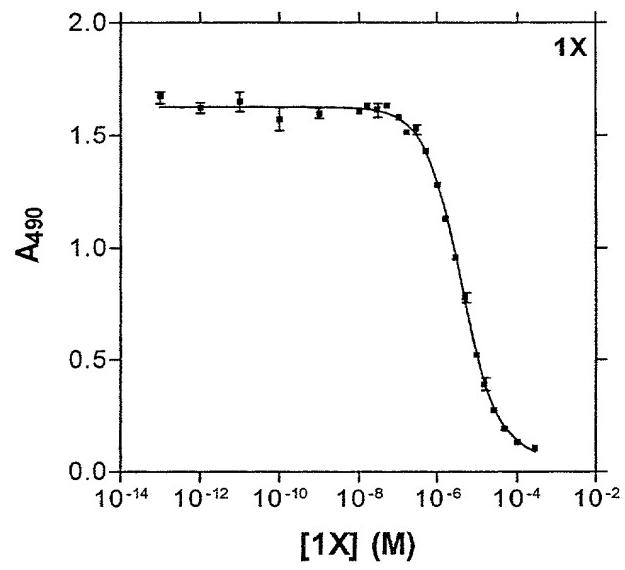
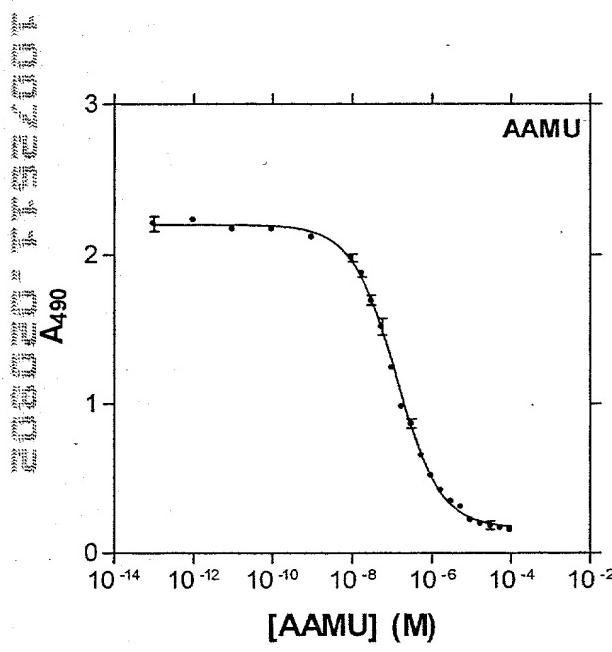
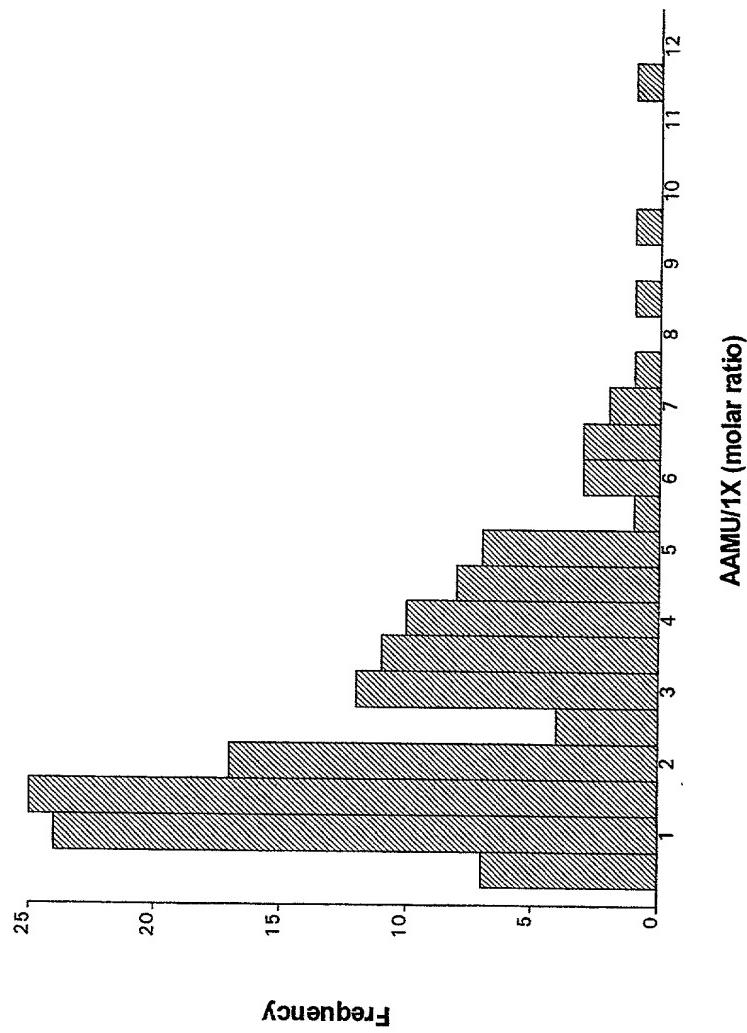


Fig. 18

Fig. 19



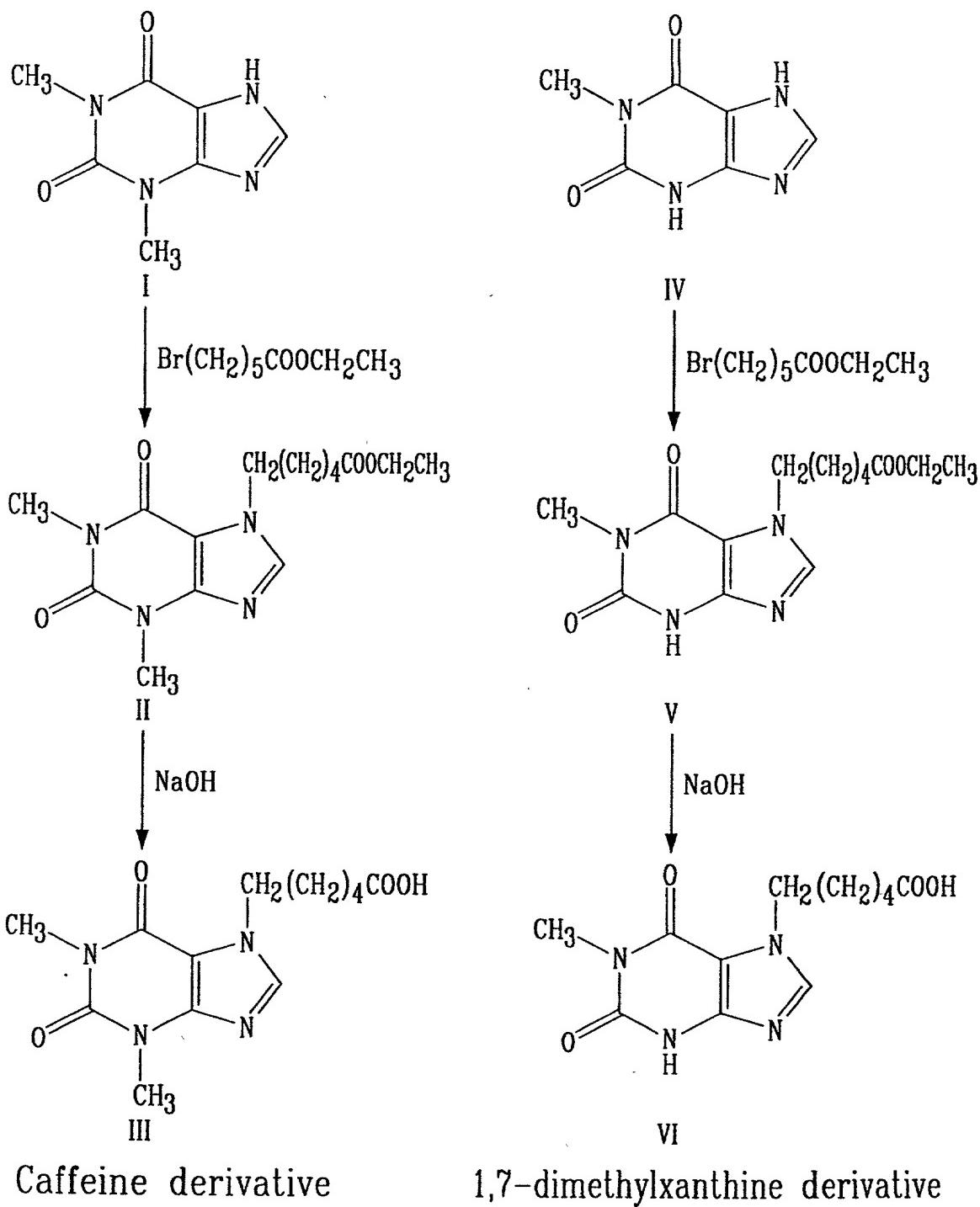


Fig. 20

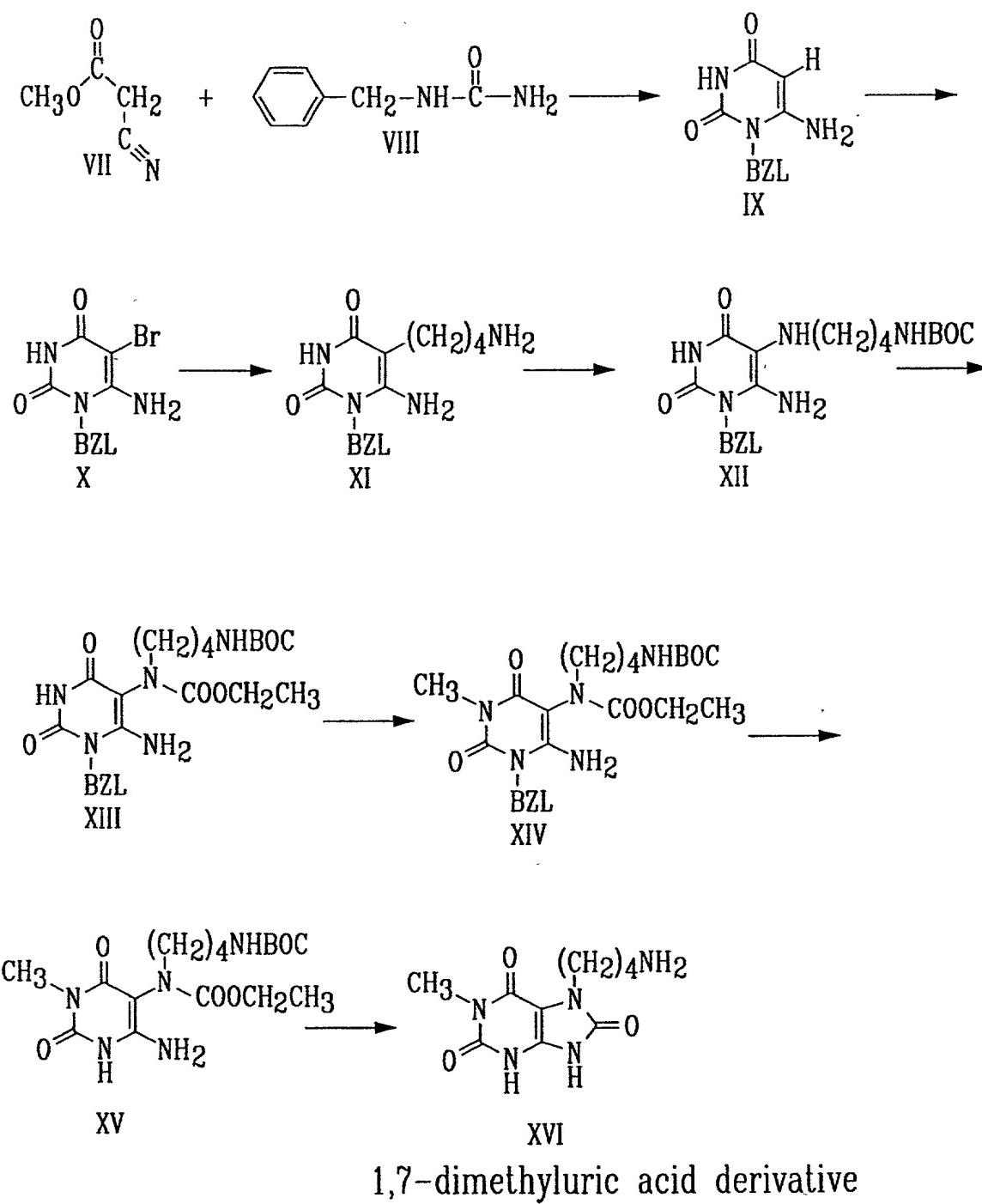


Fig. 21

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Title: Multiple Determinants for Metabolic...  
Inventor: Brian Leyland-Jones

	1	2	3	4	5	6	7	8	9	10	11	12
A	Blk	STD8	STD16	S1	S9	S5	S1	S9	S5	Blk	STD8	STD16
B	STD1	STD9	STD17	S2	S10	S6	S2	S10	S6	STD1	STD9	STD17
C	STD2	STD10	STD18	S3	S11	S7	S3	S11	S7	STD2	STD10	STD18
D	STD3	STD11	STD19	S4	S12	S8	S4	S12	S8	STD3	STD11	STD19
E	STD4	STD12	STD20	S5	S1	S9	S5	S1	S9	STD4	STD12	STD20
F	STD5	STD13	STD21	S6	S2	S10	S6	S2	S10	STD5	STD13	STD21
G	STD6	STD14	STD22	S7	S3	S11	S7	S3	S11	STD6	STD14	STD22
H	STD7	STD15	STD23	S8	S4	S12	S8	S4	S12	STD7	STD15	STD23

Fig. 22

## 96-WELL MICROARRAY PLATE

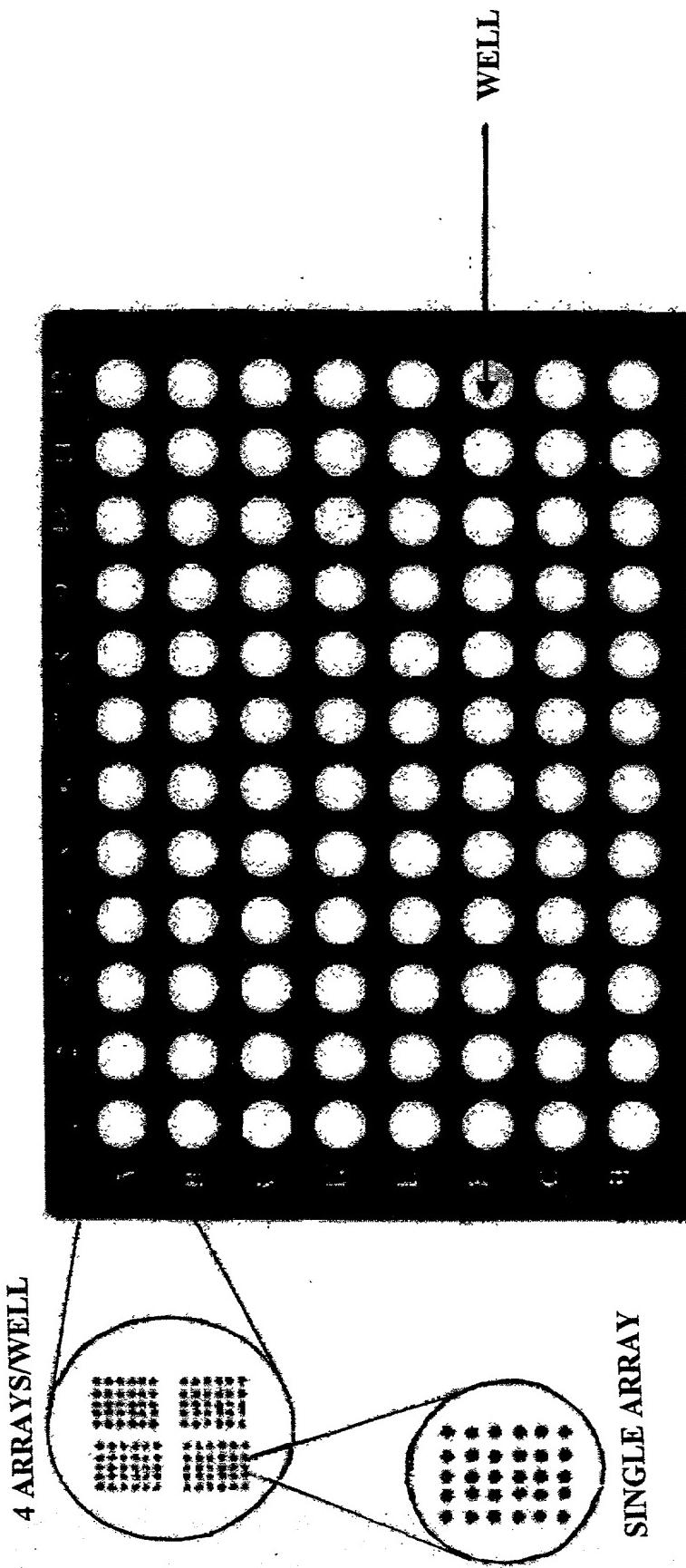
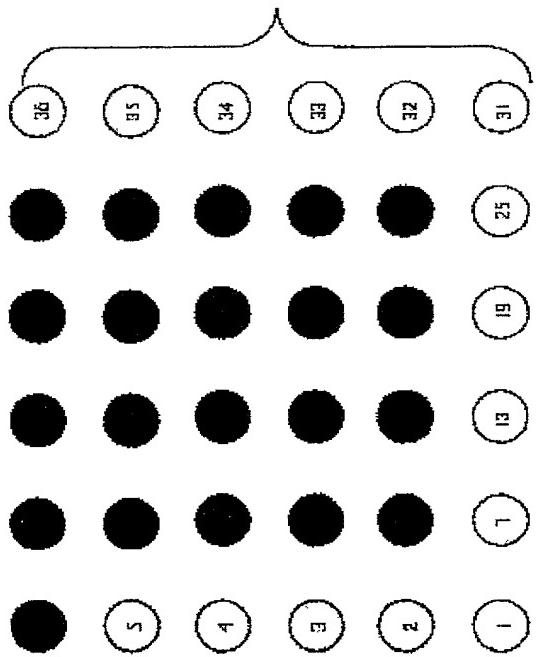


Fig. 23

Fig. 24

**6 X 6 ARRAY**



**ARRAY LAYOUT:**

- ALIGNMENT MARKERS -
- BUFFER BLANKS -
- ANTIGENS -

ANTIGEN KEY:		
1.	BIOTINYLATED BSA MARKER	
2-6.	BUFFER BLANKS	
7.	NAT2: AAMU	
8.	BIOTINYLATED BSA MARKER	
9.	NAT2: 1X	
10.	NAT1: PASA	
11.	NAT1: ACETYL-pASA	
12.	CYP1A2: CAFFEINE	
13.	BIOTINYLATED BSA MARKER	
14.	CYP1A2: 1',7-DMX	
15.	CYP1A2: 1,7-DMU	
16.	CYP2A6: COMARIN	
17.	CYP2A6: 7-HYDROXYCOUMARIN	
18.	CYP2C19: R-(-)-MEPHENYTOIN	
19.	BIOTINYLATED BSA MARKER	
20.	CYP2C19: S-(+)-MEPHENYTOIN	
21.	CYP2C9: DICLOFENAC	
22.	CYP2C9: 4-HYDROXYDICLOFENAC	
23.	CYP2D6: DEXTROMETHORPHAN	
24.	CYP2D6: DEXTRORPHAN	
25.	BIOTINYLATED BSA MARKER	
26.	CYP2E1: CHLOROXAZONE	
27.	CYP2E1: 6-HYDROXYCHLOROXAZONE	
28.	CYP3A4: MIDAZOLAM	
29.	CYP3A4: 1-HYDROXYMIDAZOLAM	
30.	BUFFER BLANK	
31-36.	BIOTINYLATED BSA MARKER	

RECORDED IN THE U.S. PATENT AND TRADEMARK OFFICE

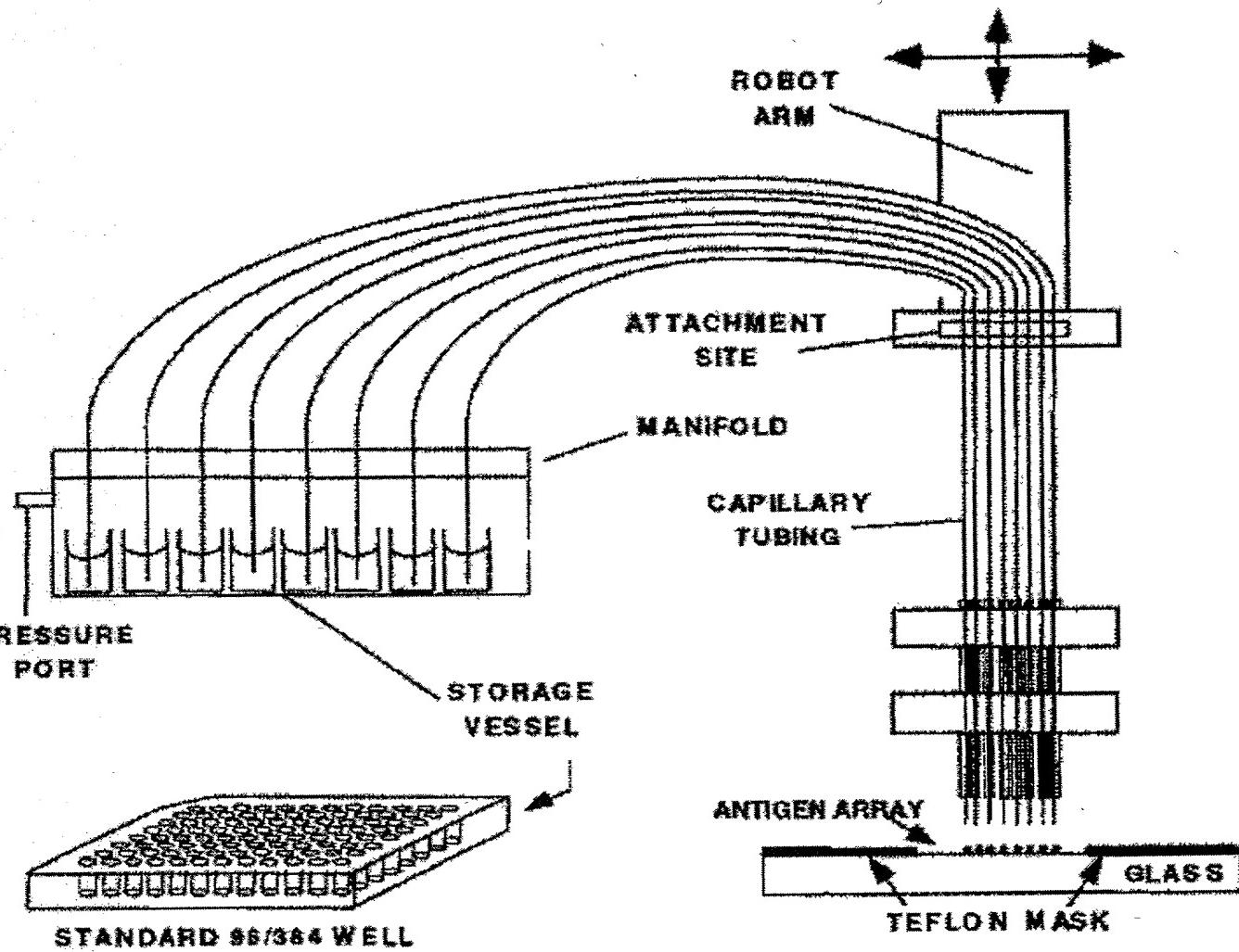


Fig. 25

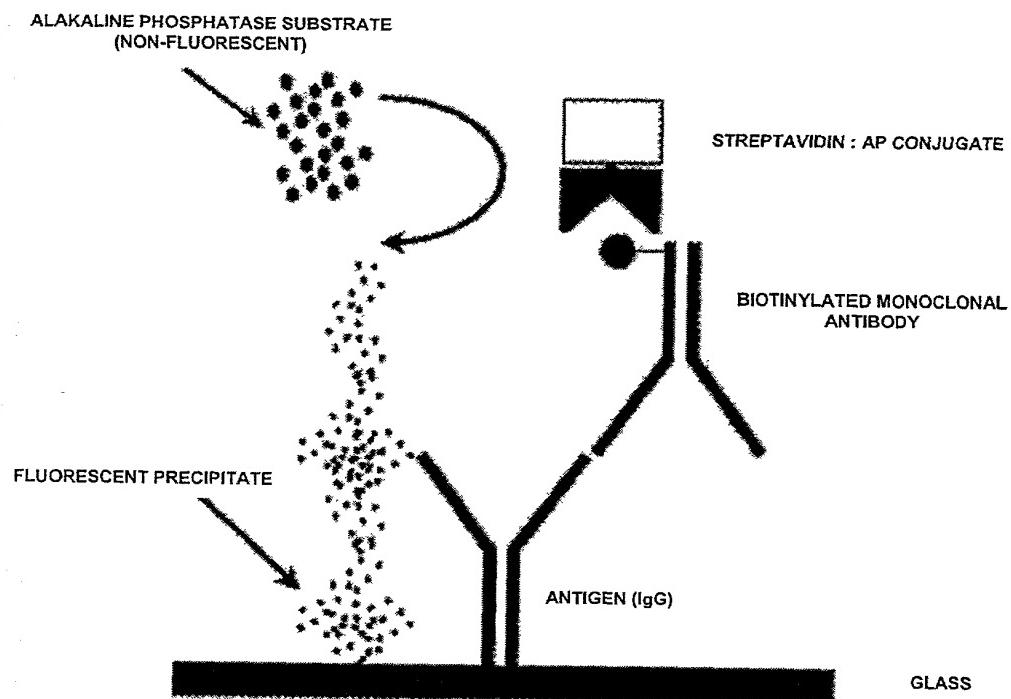


Fig. 26

## Rapid Immunassay (Dipstick)

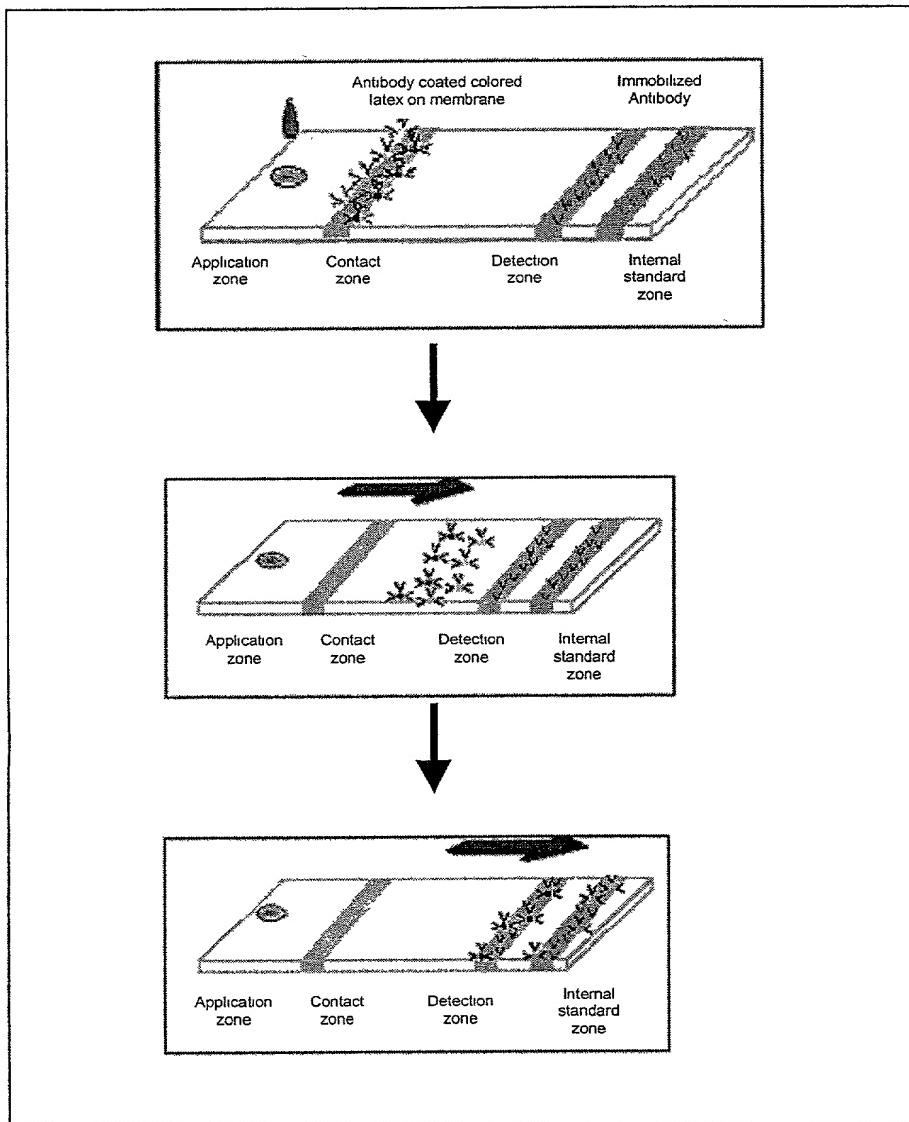


Fig. 27

## PCR-ELISA

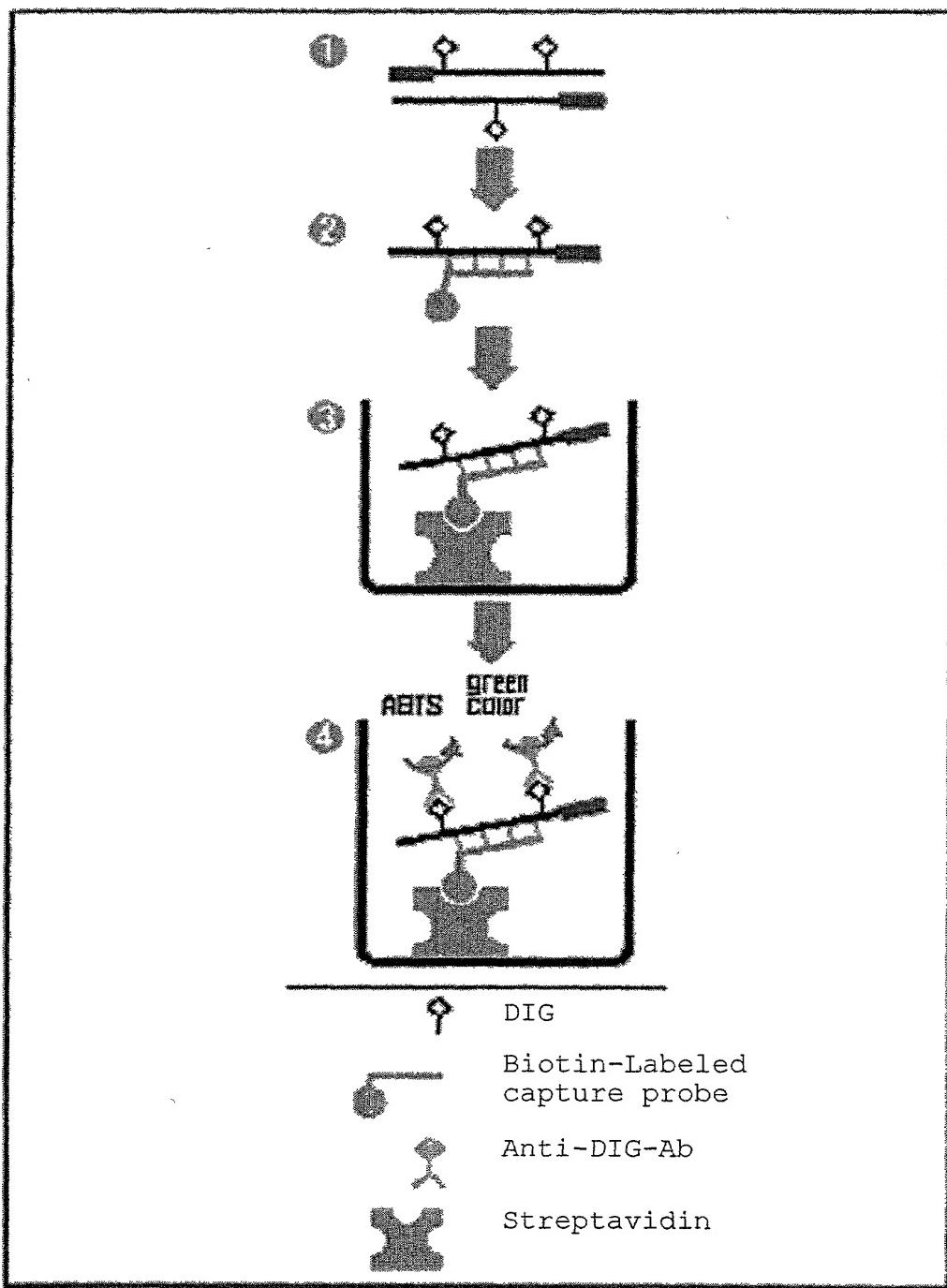


Fig. 28

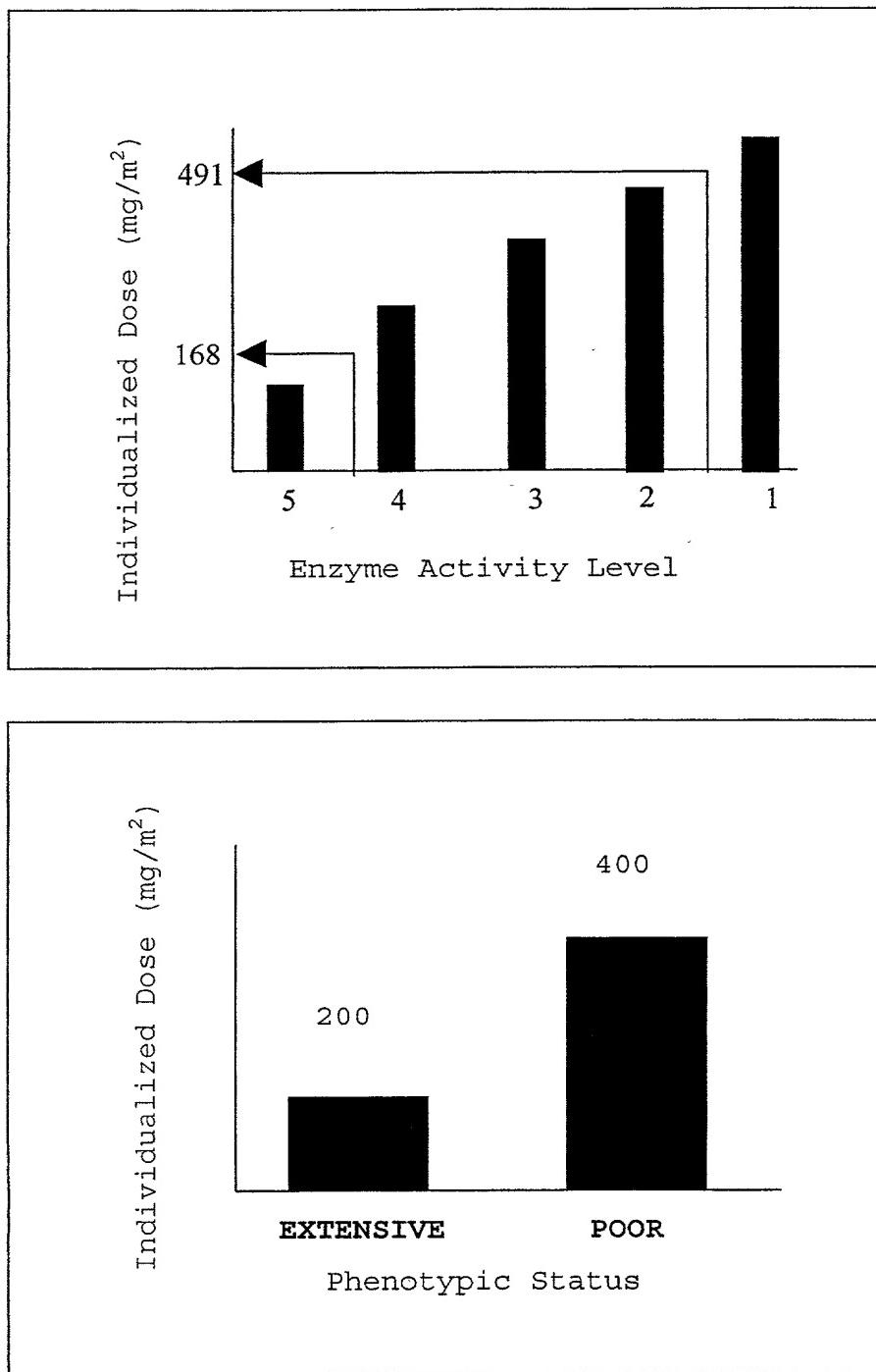


Fig. 29